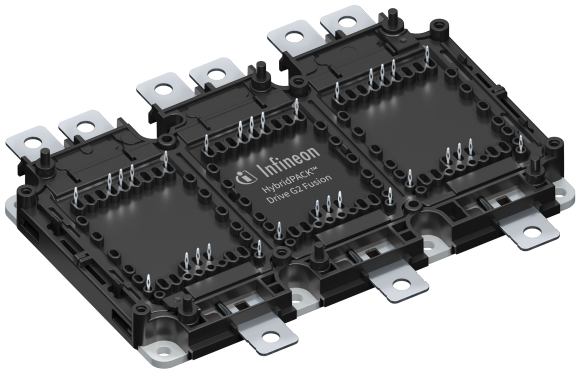
Final datasheet
HybridPACK™ Drive G2 module with Si/SiC Fusion switch

Features



- Electrical features
  - Blocking voltage 750 V
  - Implemented current 980 A / Repetitive peak current 1960 A
  - Fusion Switch – EDT3 IGBT/Diode & CoolSiC™ Gen2 MOSFET
  - Optimized for simultaneous gate drive
  - High I^2t robustness
  - Low conduction losses
  - Low switching losses
  - Low inductive design
  - $T_{vj,op}$ = 175°C
  - Integrated on-chip temperature sensor
- Mechanical features
  - 4.25 kV DC 1 second insulation
  - High creepage and clearance distances
  - Compact design
  - High power density
  - Direct-cooled PinFin base plate
  - High-performance Si_3N_4 ceramic
  - Guiding elements for PCB and cooler assembly
  - PressFIT contact technology
  - RoHS compliant, lead-free
  - UL 94 V0 module frame

Lead-free
RoHS
Green

Potential applications

- Automotive applications
- (Hybrid) electrical vehicles (H)EV
- Motor drives
- Commercial, construction and agricultural vehicles (CAV)

Product validation

- Qualified according to AQG 324, release no.: 03.1/2021

Description

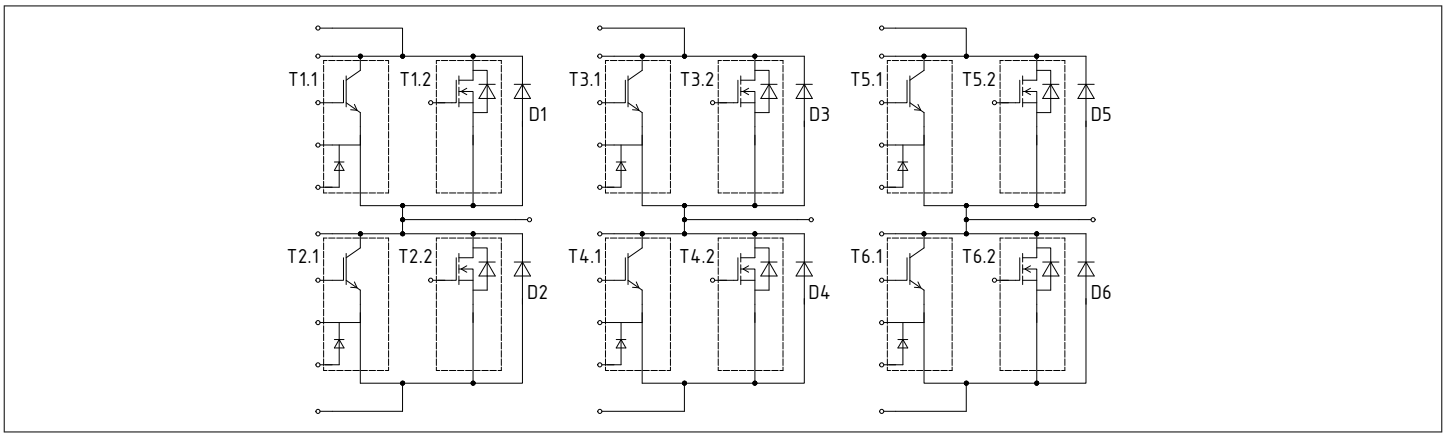


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1 Package

Table 1 Insulation coordination

Parameter	Symbol	Note or test condition	Values	Unit
Isolation test voltage	V_{ISOL}	RMS, f = 0 Hz, t = 1 sec	4.25	kV
Material of module baseplate			Cu+Ni[1)]	
Internal insulation		basic insulation (class 1, IEC 61140)	Si_3N_4	
Creepage distance	$d_{Creep, min}$	terminal to heatsink[2)]	8	mm
		terminal to terminal[2)]	8	
Clearance	$d_{Clear, min}$	terminal to heatsink[3)]	4	mm
		terminal to terminal[3)]	4	
Comparative tracking index	*CTI*		> 175	

1) Ni plated Cu baseplate.
2) PD2, IEC 60664-1, Ed. 3.0
3) IEC 60664-1, Ed. 3.0

Table 2 Maximum rated values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Maximum RMS module terminal current	$I_{t,rms}$	T_{Ct} = 125 °C		800		A
Heat-staking dome temperature[1)]	T_{HS}	$t_{staking}$ < 10s			280	°C

1) Heat-staking according to application note AN-G2-ASSEMBLY.

Table 3 Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Pressure drop in cooling circuit	Δp	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm^3/min, T_f = 65 °C		76[1)]		mbar
Maximum pressure in cooling circuit	p	$T_{baseplate}$ < 40 °C (relative pressure)			3.0	bar
		$T_{baseplate}$ ≥ 40 °C (relative pressure)			2.5	
Stray inductance module	$L_{s,CE}$	terminal (P) to terminal (N)		N/A[2)]		nH
Module lead resistance, terminals - chip	$R_{CC'+EE'}$	T_f = 25 °C, per switch		0.60		mΩ
Storage temperature	T_{stg}		-40		125	°C
Mounting torque for module mounting[3)]	M	Screw M4 baseplate to heatsink	1.8	2.0	2.2	Nm
		Screw EJOT Delta PCB to frame	0.45	0.50	0.55	

(table continues...)

Table 3 (continued) Characteristic values

Parameter	Symbol	Note or test condition	Values			Unit
			Min.	Typ.	Max.	
Weight	G			760		g

1) Cooler design and flow direction according to application note AN-G2-ASSEMBLY.
2) $L_{s,CE}$ for Fusion switch not applicable. Please refer to SOA/RBOSA diagram.
3) Screw types and torque according to application note AN-G2-ASSEMBLY.

2 Fusion transistor (IGBT + MOSFET)

Table 4 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Blocking voltage	V_{CES}		T_{vj} = 25 °C	750[1)]	V
Implemented current	I_{CN}			980	A
Continuous DC current	$I_{C,nom}$	T_f = 65 °C, $T_{vj,max}$ = 175 °C		600	A
Repetitive peak current	I_{CRM}	verified by design, t_p limited by $T_{vj,max}$		1960	A
Gate-emitter voltage, max. static voltage	V_{GE}			-6/19	V
Gate-emitter voltage, max. transient voltage	V_{GE}	Duty Cycle < 1 % (first transient maximum peak)		-10/23	V

1) 780 V for transient turn-off overshoot.

Table 5 Recommended values

Parameter	Symbol	Note or test condition	Values	Unit
On-state gate voltage	$V_{GE(on)}$		15...18[1)]	V
Off-state gate voltage	$V_{GE(off)}$		-5[1)]	V

1) MOSFET and IGBT gate has to be shorted (V_{GE} = V_{GS}).

Table 6 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Output characteristic	$V_{CE,sat}$	I_C = 600 A, V_{GE} = 18 V	T_{vj} = 25 °C		1.06	1.30	V
			T_{vj} = 125 °C		1.17		
			T_{vj} = 175 °C		1.25		
Output characteristic	$V_{CE,sat}$	I_C = 980 A, V_{GE} = 18 V	T_{vj} = 25 °C		1.35		V
			T_{vj} = 125 °C		1.56		
			T_{vj} = 175 °C		1.71		
Gate charge	Q_G	V_{CE} = 400 V, V_{GE} = -5/18 V			1.95		µC

(table continues...)

Table 6 (continued) Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Output capacitance	C_{oes}	f = 0.1 MHz, V_{CE} = 400 V, V_{GE} = 0 V	T_{vj} = 25 °C		1.2		nF
Collector-emitter leakage current	I_{CEX}	V_{CE} = 750 V, V_{GE} = -5 V	T_{vj} = 25 °C			42	µA
Turn-on delay time, inductive load	$t_{d,on}$	I_C = 600 A, V_{CE} = 400 V, V_{GE} = -5/18 V, $R_{G,on}$ = 1.5 Ω	T_{vj} = 25 °C		66.4		ns
			T_{vj} = 125 °C		62.3		
			T_{vj} = 175 °C		61.0		
Rise time, inductive load	t_r	I_C = 600 A, V_{CE} = 400 V, V_{GE} = -5/18 V, $R_{G,on}$ = 1.5 Ω	T_{vj} = 25 °C		55.6		ns
			T_{vj} = 125 °C		57.2		
			T_{vj} = 175 °C		58.9		
Turn-off delay time, inductive load	$t_{d,off}$	I_C = 600 A, V_{CE} = 400 V, V_{GE} = -5/18 V, $R_{G,off}$ = 1.5 Ω	T_{vj} = 25 °C		330		ns
			T_{vj} = 125 °C		384		
			T_{vj} = 175 °C		412		
Fall time, inductive load	t_f	I_C = 600 A, V_{CE} = 400 V, V_{GE} = -5/18 V, $R_{G,off}$ = 1.5 Ω	T_{vj} = 25 °C		76.8		ns
			T_{vj} = 125 °C		153		
			T_{vj} = 175 °C		180		
Turn-on energy loss per pulse	E_{on}	I_C = 600 A, V_{CE} = 400 V, L_σ = 6.5 nH, V_{GE} = -5/18 V, $R_{G,on}$ = 1.5 Ω	T_{vj} = 25 °C, di/dt = 8790 A/µs		4.4		mJ
			T_{vj} = 125 °C, di/dt = 8620 A/µs		5.6		
			T_{vj} = 175 °C, di/dt = 8320 A/µs		6.9		
Turn-off energy loss per pulse	E_{off}	I_C = 600 A, V_{CE} = 400 V, L_σ = 6.5 nH, V_{GE} = -5/18 V, $R_{G,off}$ = 1.5 Ω	T_{vj} = 25 °C, dv/dt = 7920 V/µs		22.7		mJ
			T_{vj} = 125 °C, dv/dt = 5830 V/µs		29.5		
			T_{vj} = 175 °C, dv/dt = 5120 V/µs		31.6		
SC data	I_{SC}	V_{CC} = 470 V, V_{GE} = -5/18 V, $V_{CEmax} = V_{CES}-L_{s,CE}\cdot di/dt$	T_{vj} = 25 °C, t_P = 1.5 µs		10000		A
			T_{vj} = 175 °C, t_P = 1.5 µs		6100		

3 Fusion diode

Table 7 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Repetitive peak reverse voltage	V_{RRM}		T_{vj} = 25 °C	750[1)]	V
Implemented forward current	I_{FN}			980	A
Continuous DC forward current	$I_{F,nom}$			600	A
I^2t - value	I^2t	V_R = 0 V, t_P = 10 ms	T_{vj} = 175 °C	14500[2)]	A^2s

1) 780 V for transient turn-off overshoot.
2) The load current can be applied in positive as well as in negative flow direction for condition $V_{GE} = V_{GS}$ = 18 V

Table 8 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Forward voltage	V_F	I_F = 600 A, V_{GE} = 18 V	T_{vj} = 25 °C		1.54	1.95	V
			T_{vj} = 125 °C		1.74		
			T_{vj} = 175 °C		1.83		
Forward voltage	V_F	I_F = 980 A, V_{GE} = 18 V	T_{vj} = 25 °C		2.10		V
			T_{vj} = 125 °C		2.43		
			T_{vj} = 175 °C		2.56		
Peak reverse recovery current	I_{rm}	I_F = 600 A, V_{GE} = -5/18 V	T_{vj} = 25 °C		256		A
			T_{vj} = 125 °C		317		
			T_{vj} = 175 °C		350		
Recovered charge	Q_r	I_F = 600 A, V_{GE} = -5/18 V	T_{vj} = 25 °C		9.7		µC
			T_{vj} = 125 °C		18.0		
			T_{vj} = 175 °C		23.7		
Reverse recovery energy	E_{rec}	I_F = 600 A, V_{GE} = -5/18 V, R_G = 1.5 Ω	T_{vj} = 25 °C, $-di_F/dt$ = 12.6 kA/µs		3.51		mJ
			T_{vj} = 125 °C, $-di_F/dt$ = 11.7 kA/µs		6.50		
			T_{vj} = 175 °C, $-di_F/dt$ = 11.1 A/µs		8.42		
Thermal resistance, junction to cooling fluid[1)]	$R_{th,j-f}$	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm^3/min, T_f = 65 °C, only Si diode			0.296		K/W

(table continues...)

Table 8 (continued) Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Standard deviation of thermal resistance, junction to cooling fluid[1)]	$\sigma_{Rth,j\text{-}f}$	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm³/min, T_f = 65 °C, only Si diode			11		K/kW
Temperature under switching conditions	$T_{vj,op}$		continuous operation	-40		175	°C

1) Cooler design and flow direction according to application note AN-G2-ASSEMBLY. EoL criteria see AQG324, verified by characterization.

4 IGBT, Inverter

Table 9 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Collector-emitter voltage	V_{CES}		T_{vj} = 25 °C	750[1)]	V
Repetitive peak collector current	I_{CRM}	verified by design, t_p limited by $T_{vj,max}$		1150[2)]	A
Gate-emitter peak voltage	V_{GES}			-10/23	V

1) 780 V for transient turn-off overshoot.
2) Can be ignored in case of shorted IGBT + MOSFET gate: Please refer to Fusion transistor (IGBT + MOSFET) in this case.

Table 10 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Collector-emitter saturation voltage	$V_{CE,sat}$	I_C = 300 A, V_{GE} = 18 V	T_{vj} = 25 °C		1.20	1.33	V
			T_{vj} = 125 °C		1.25		
			T_{vj} = 175 °C		1.28		
Gate threshold voltage	$V_{GE,th}$	I_C = 5.16 mA, V_{CE} = V_{GE}	T_{vj} = 25 °C	5.05	5.85	6.6	V
Gate charge	Q_G	V_{CE} = 400 V, V_{GE} = -5/18 V			1.50		µC
Internal gate resistor	$R_{G,int}$		T_{vj} = 25 °C		2.0		Ω
Input capacitance	C_{ies}	f = 0.1 MHz, V_{CE} = 400 V, V_{GE} = 0 V	T_{vj} = 25 °C		24		nF
Reverse transfer capacitance	C_{res}	f = 0.1 MHz, V_{CE} = 400 V, V_{GE} = 0 V	T_{vj} = 25 °C		0.036		nF
Gate-emitter leakage current	I_{GES}		T_{vj} = 25 °C			100	nA
Thermal resistance, junction to cooling fluid[1)]	$R_{th,j\text{-}f}$	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm³/min, T_f = 65 °C			0.156		K/W

(table continues...)

Table 10 (continued) Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Standard deviation of thermal resistance, junction to cooling fluid[1)]	$\sigma_{Rth,j\text{-}f}$	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm^3/min, T_f = 65 °C			5.0		K/kW
Temperature under switching conditions	$T_{vj,op}$		continuous operation	-40		175	°C

1) Cooler design and flow direction according to application note AN-G2-ASSEMBLY. EoL criteria see AQG324, verified by characterization.

5 MOSFET Inverter

Table 11 Maximum rated values

Parameter	Symbol	Note or test condition		Values	Unit
Drain-source voltage	V_{DSS}		T_{vj} = 25 °C	750[1)]	V
Pulsed drain current	$I_{D,pulse}$	verified by design, t_p limited by $T_{vj,max}$		400[2)]	A
Gate-source voltage, max. static voltage	V_{GS}			-6/19	V
Gate-source voltage, max. transient voltage	V_{GS}	Duty Cycle < 1 % (first transient maximum peak)		-10/23	V

1) 780 V for transient turn-off overshoot.
2) Can be ignored in case of shorted IGBT + MOSFET gate: Please refer to Fusion transistor (IGBT + MOSFET) in this case.

Table 12 Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Drain-source on-resistance	$R_{DS,on}$	I_D = 186 A, V_{GS} = 18 V	T_{vj} = 25 °C		3.77	5.15	mΩ
			T_{vj} = 125 °C		5.00		
			T_{vj} = 175 °C		6.08		
Gate threshold voltage	$V_{GS,th}$	I_D = 60 mA, V_{GS} = V_{DS}, (tested after 1ms pulse at V_{GS} = +20 V)	T_{vj} = 25 °C	3.20[1)]	4.00	4.55	V
Total gate charge	Q_G	V_{DS} = 400 V, V_{GS} = -5/18 V			0.470		µC
Internal gate resistor	$R_{G,int}$		T_{vj} = 25 °C		1.7		Ω
Input capacitance	C_{iss}	f = 0.1 MHz, V_{DS} = 400 V, V_{GS} = 0 V	T_{vj} = 25 °C		11		nF
Reverse transfer capacitance	C_{rss}	f = 0.1 MHz, V_{DS} = 400 V, V_{GS} = 0 V	T_{vj} = 25 °C		0.059		nF
Gate-source leakage current	I_{GSS}	V_{GS} = 20 V, V_{DS} = 0 V	T_{vj} = 25 °C			400	nA

(table continues...)

Table 12 (continued) Characteristic values

Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Thermal resistance, junction to cooling fluid[2)]	$R_{th,j\text{-}f}$	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm³/min, T_f = 65 °C			0.264		K/W
Standard deviation of thermal resistance, junction to cooling fluid[2)]	$\sigma_{Rth,j\text{-}f}$	50% water / 50% ethylene glycol, $\Delta V/\Delta t$ = 10 dm³/min, T_f = 65 °C			7.8		K/kW
Temperature under switching conditions	$T_{vj,op}$		continuous operation	-40		175	°C

1) At 0 h operating time. During inverter operation, the value can be lower depending on T_{vj}, $V_{GS(off)}$, (switching frequency) f_{sw} over lifetime. For a final assessment of $V_{GS,th}$ Min. value depending on customer application, please contact the Infineon sales office for the necessary technical support by Infineon.
2) Cooler design and flow direction according to application note AN-G2-ASSEMBLY. EoL criteria see AQG324, verified by characterization.

6 Temperature sensor

Table 13 Characteristic values

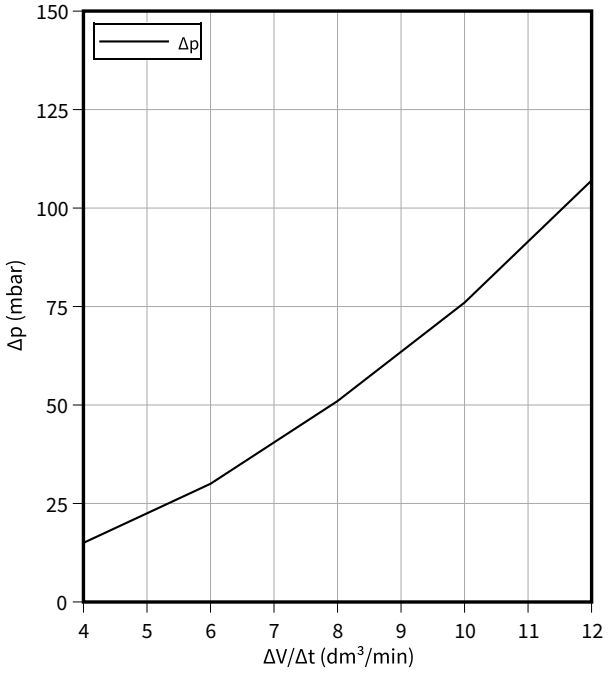
Parameter	Symbol	Note or test condition		Values			Unit
				Min.	Typ.	Max.	
Transient sense current	I_{TS}					10	mA
Continuous sense current	I_{TS}					1	mA
Forward voltage	V_{TS}		I_{TS} = 0.2 mA, T_{vj} = 25 °C	2.230	2.280	2.320	V
Temperature coefficient (TCR)	TC_{TS}	I_{TS} = 0.2 mA			-5.50		mV/K

7 Characteristics diagrams

Pressure drop in cooling circuit (typical), Package

$\Delta p = f(\Delta V/\Delta t)$

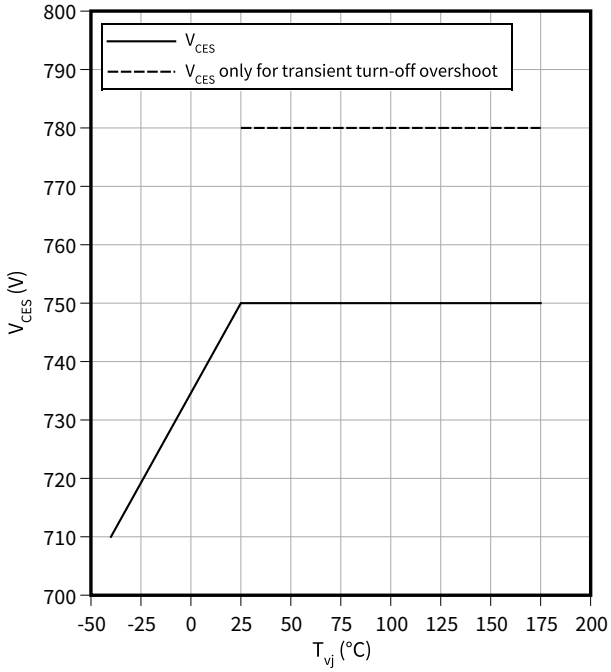
$T_f = 65$ °C, 50% water / 50% ethylene glycol



Maximum allowed blocking voltage, Fusion transistor (IGBT + MOSFET)

$V_{CES} = f(T_{vj})$

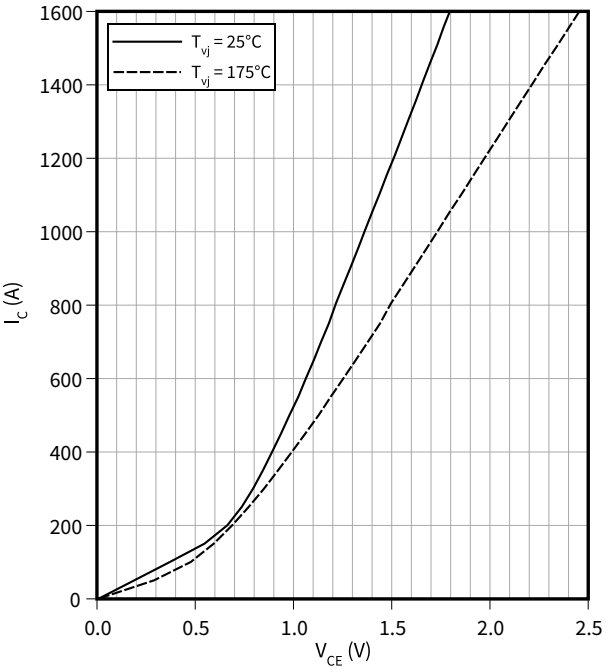
Verified by characterization / design, not by test.



Output characteristic (typical), Fusion transistor (IGBT + MOSFET)

$I_C = f(V_{CE})$

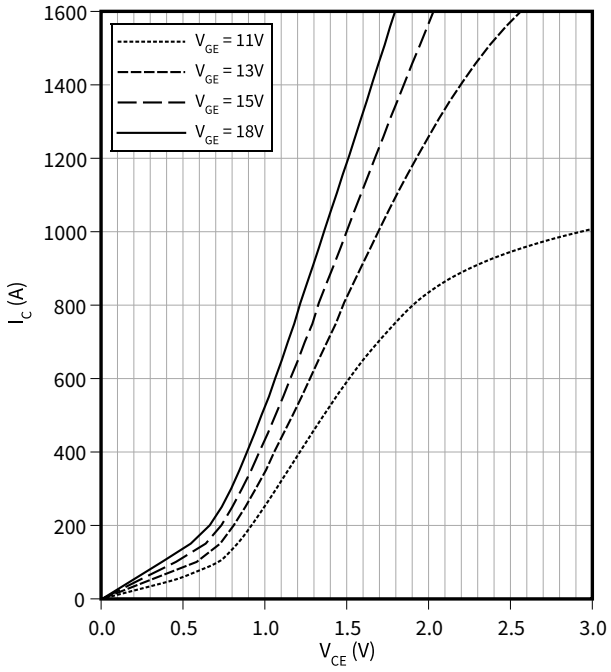
$V_{GE} = 18$ V



Output characteristic (typical), Fusion transistor (IGBT + MOSFET)

$I_C = f(V_{CE})$

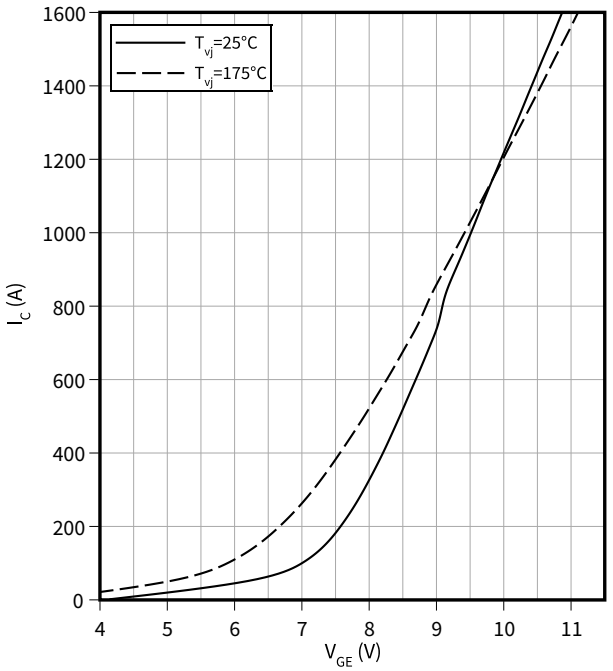
$T_{vj} = 25$ °C



Transfer characteristic (typical), Fusion transistor (IGBT + MOSFET)

$I_C = f(V_{GE})$

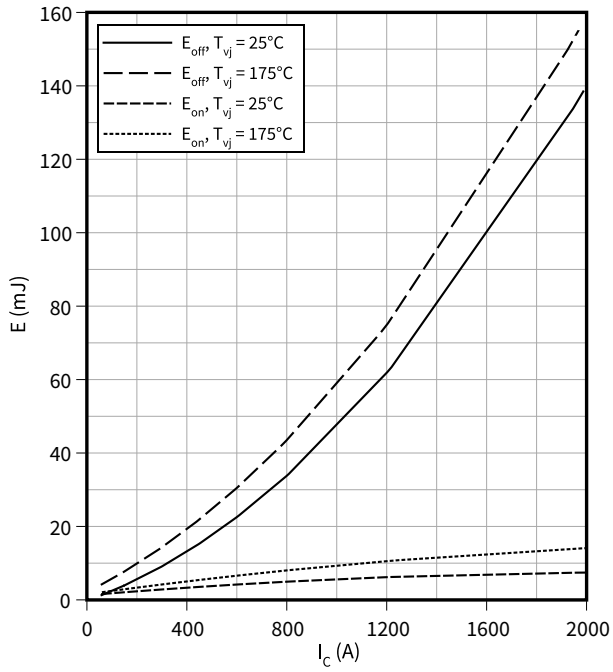
V_{CE} = 20 V



Switching losses (typical), Fusion transistor (IGBT + MOSFET)

$E = f(I_C)$

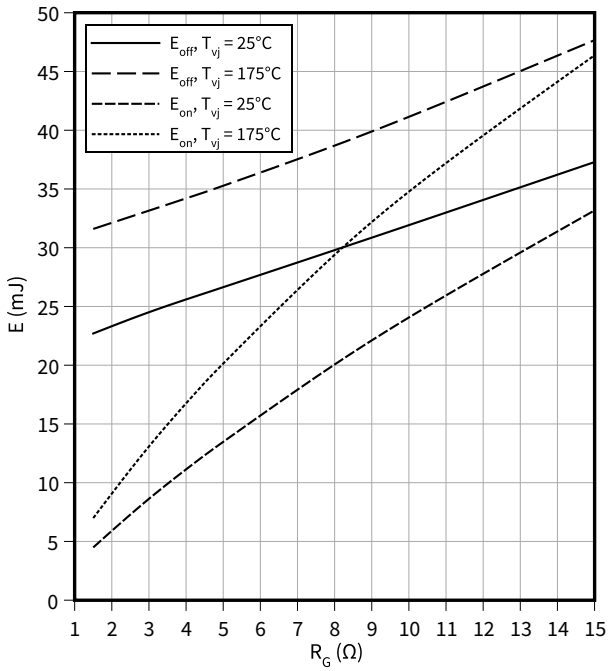
V_{GE} = -5/18 V, $R_{G,off}$ = 1.5 Ω, $R_{G,on}$ = 1.5 Ω, V_{CE} = 400 V



Switching losses (typical), Fusion transistor (IGBT + MOSFET)

$E = f(R_G)$

V_{GE} = -5/18 V, V_{CE} = 400 V, I_C = 600 A

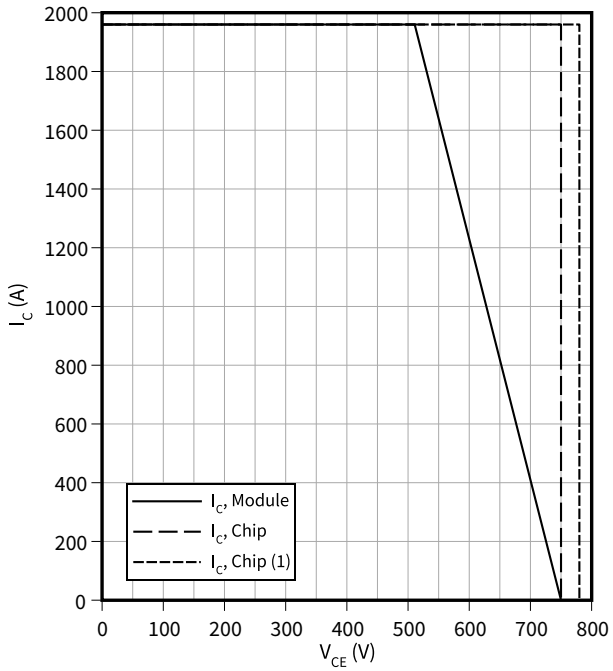


Reverse bias safe operating area (RBSOA), Fusion transistor (IGBT + MOSFET)

$I_C = f(V_{CE})$

T_{vj} = 175 °C, $R_{G,off}$ = 1.5 Ω, V_{GE} = -5/18 V

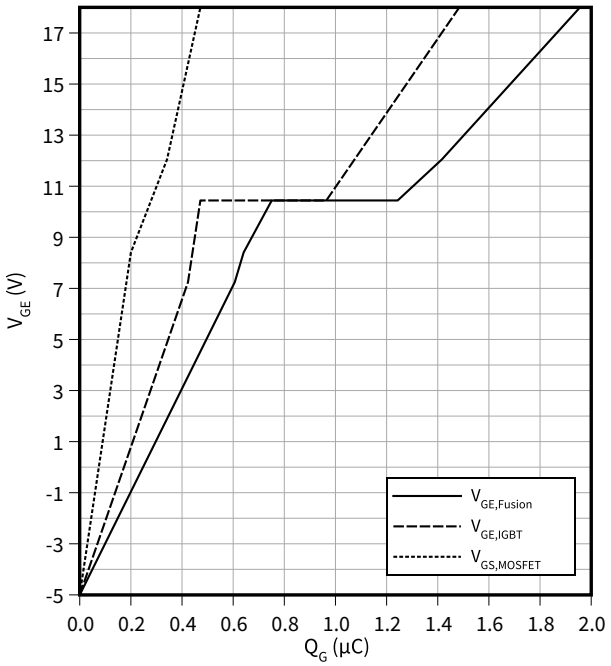
(1) only for transient overshoot



Gate charge characteristic (typical), Fusion transistor (IGBT + MOSFET)

$V_{GE} = f(Q_G)$

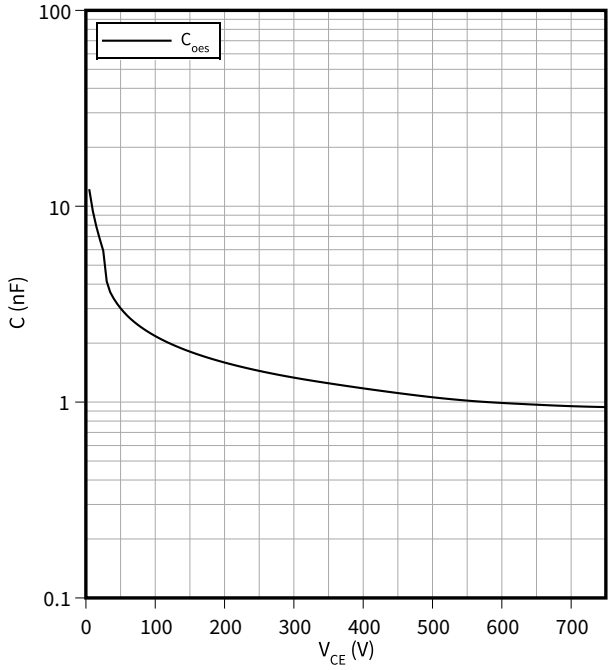
$T_{vj} = 25\ °C$, $V_{CE} = 400\ V$



Capacity characteristic (typical) Fusion transistor, Fusion transistor (IGBT + MOSFET)

$C = f(V_{CE})$

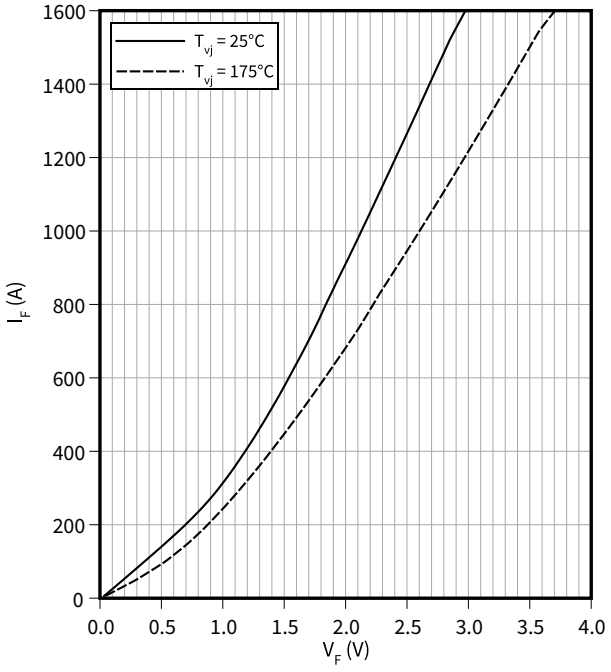
$V_{GE} = 0\ V$, $T_{vj} = 25\ °C$, $f = 0.1\ MHz$



Forward characteristic (typical), Fusion diode

$I_F = f(V_F)$

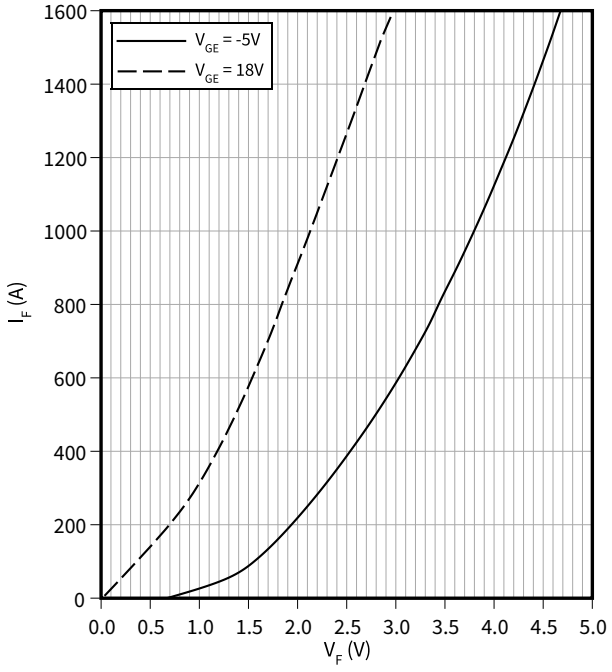
$V_{GE} = 18\ V$



Forward characteristic (typical), Fusion diode

$I_F = f(V_F)$

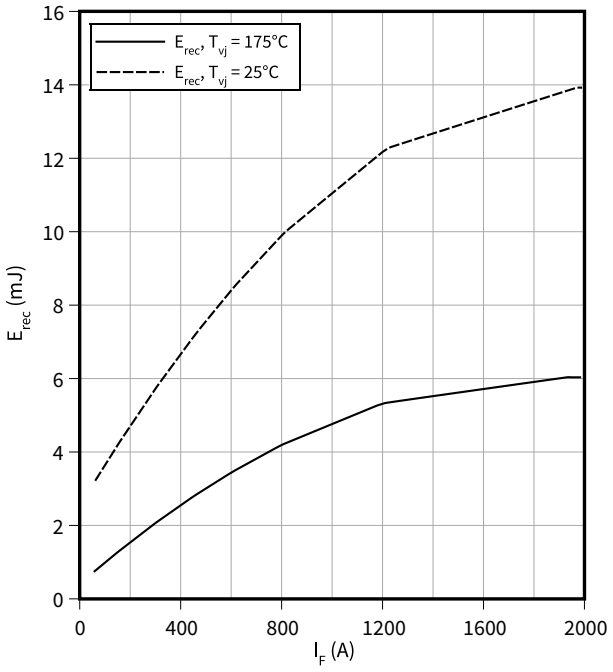
$T_{vj} = 25\ °C$



Switching losses (typical), Fusion diode

$E_{rec} = f(I_F)$

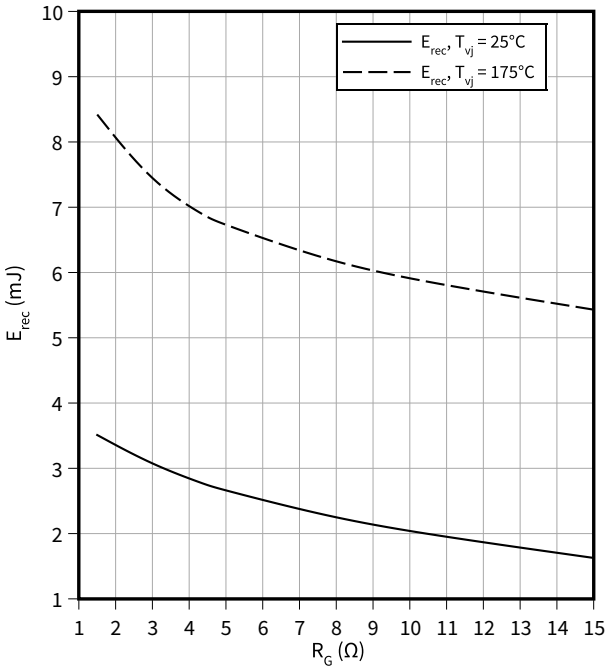
$V_{CE} = 400$ V, $V_{GE} = -5/18$ V, $R_G = 1.5\ \Omega$



Switching losses (typical), Fusion diode

$E_{rec} = f(R_G)$

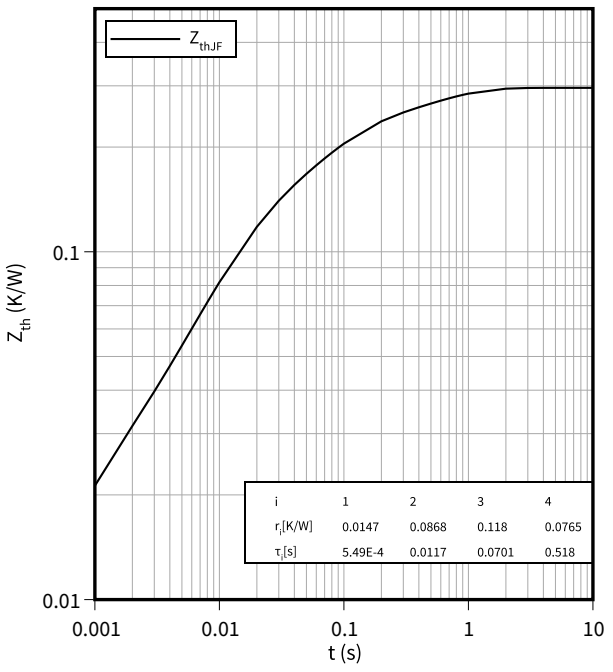
$V_{CE} = 400$ V, $V_{GE} = -5/18$ V, $I_F = 600$ A



Transient thermal impedance (typical), Fusion diode

$Z_{th} = f(t)$

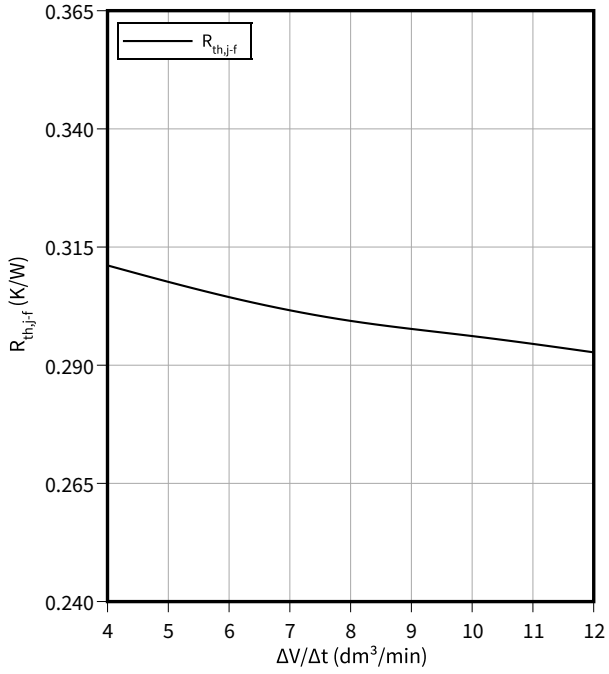
$\Delta V/\Delta t = 10$ dm³/min, 50% water/50% ethylene glycol , $T_f = 65$ °C



Thermal resistance (typical), Fusion diode

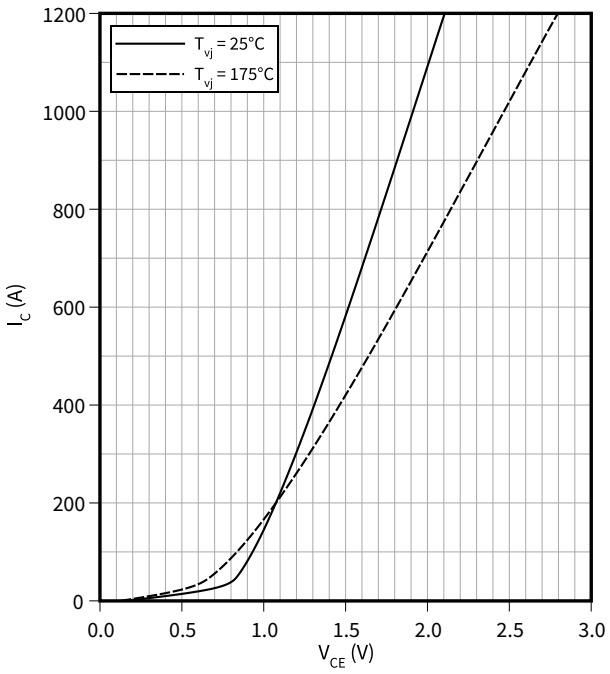
$R_{th,j\text{-}f} = f(\Delta V/\Delta t)$

$T_f = 65$ °C, 50% water / 50% ethylene glycol



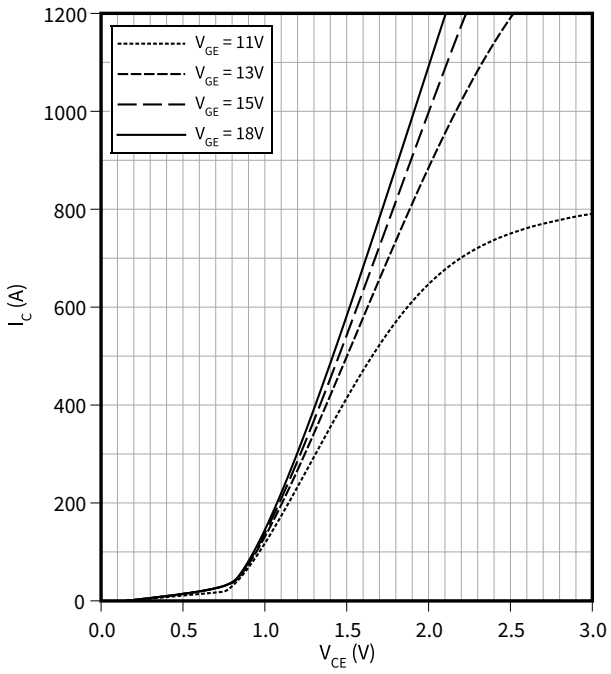
Output characteristic (typical), IGBT, Inverter

$I_C = f(V_{CE})$
$V_{GE} = 18$ V



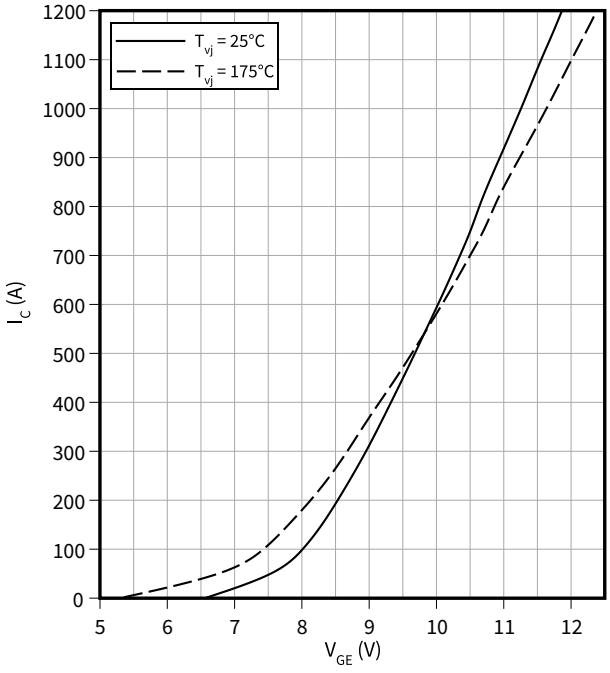
Output characteristic (typical), IGBT, Inverter

$I_C = f(V_{CE})$
$T_{vj} = 25$ °C



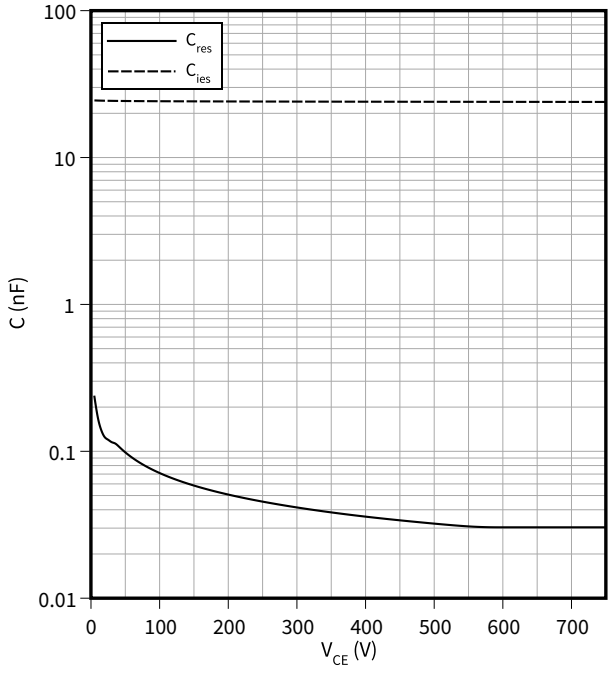
Transfer characteristic (typical), IGBT, Inverter

$I_C = f(V_{GE})$
$V_{CE} = 20$ V



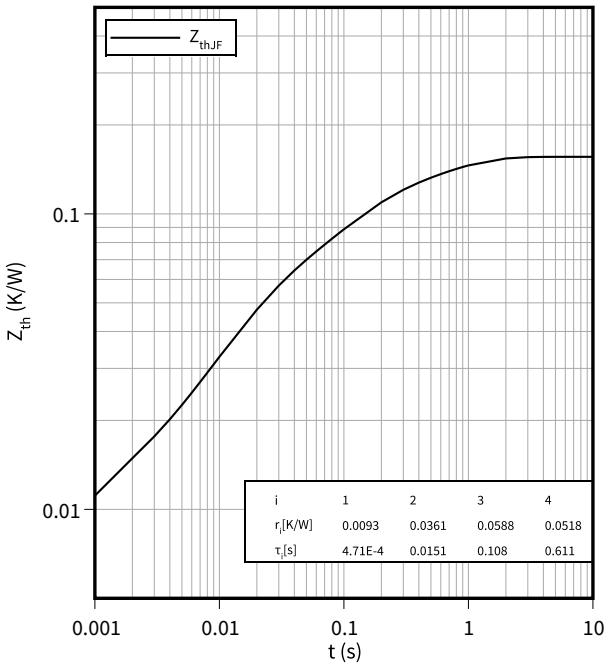
Capacity characteristic (typical), IGBT, Inverter

$C = f(V_{CE})$
$V_{GE} = 0$ V, $T_{vj} = 25$ °C, f = 0,1 MHz



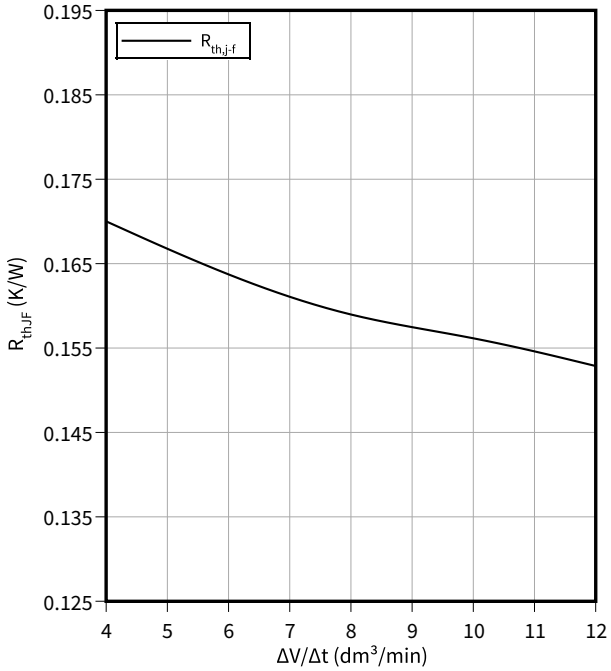
Transient thermal impedance (typical), IGBT, Inverter

$Z_{th} = f(t)$
$\Delta V/\Delta t = 10\ dm^3/min$, $T_f = 65\ °C$,
50% water / 50% ethylene glycol



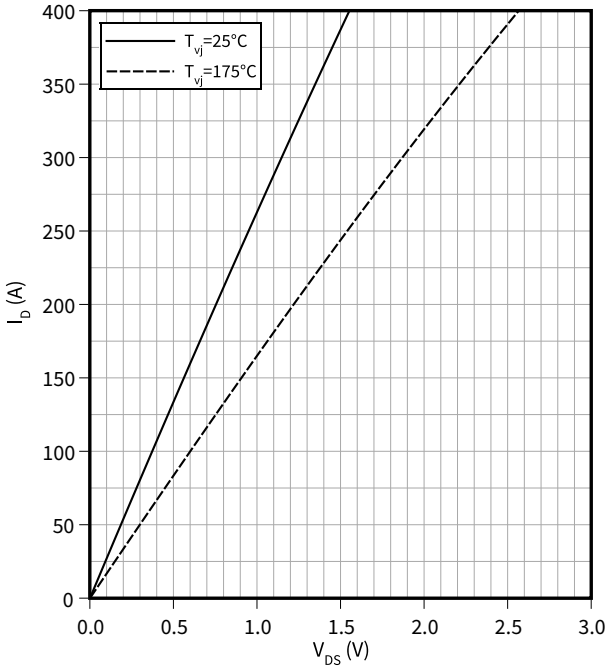
Thermal resistance (typical), IGBT, Inverter

$R_{thJF} = f(\Delta V/\Delta t)$
$T_f = 65\ °C$, 50% water / 50% ethylene glycol



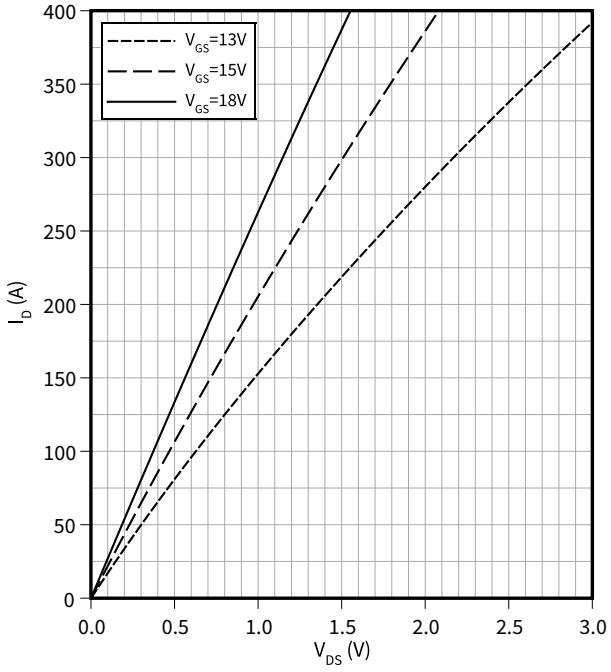
Output characteristic (typical), MOSFET Inverter

$I_D = f(V_{DS})$
$V_{GS} = 18\ V$



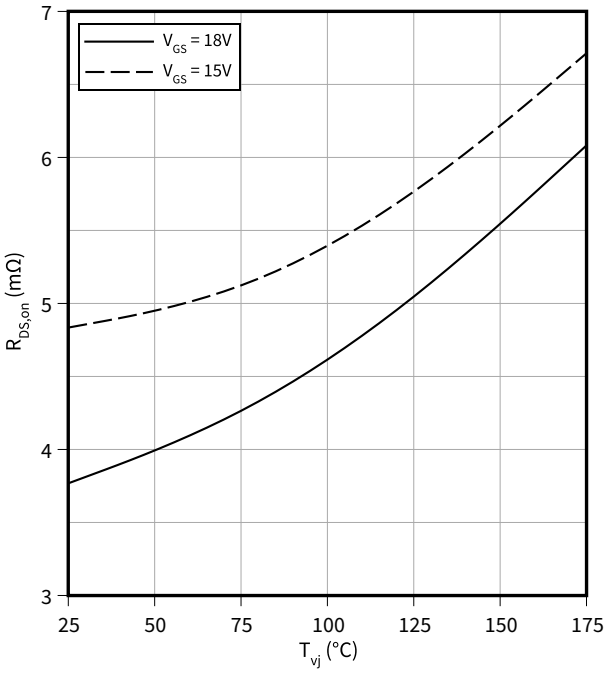
Output characteristic (typical), MOSFET Inverter

$I_D = f(V_{DS})$
$T_{vj} = 25\ °C$



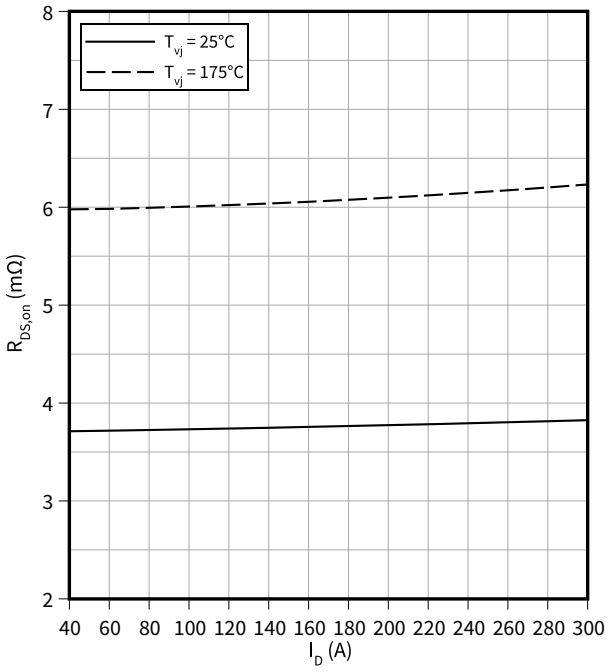
Drain-source on-resistance (typical), MOSFET Inverter

$R_{DS,on} = f(T_{vj})$
$I_D = 186$ A



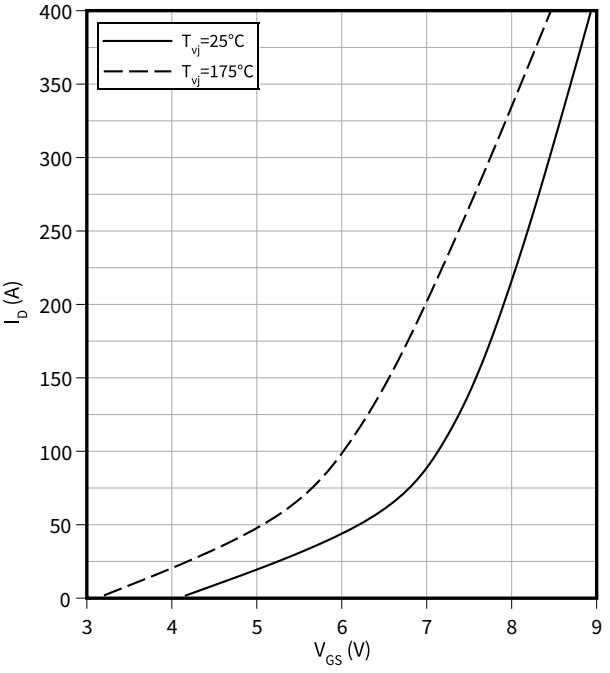
Drain-source on-resistance (typical), MOSFET Inverter

$R_{DS,on} = f(I_D)$
$V_{GS} = 18$ V



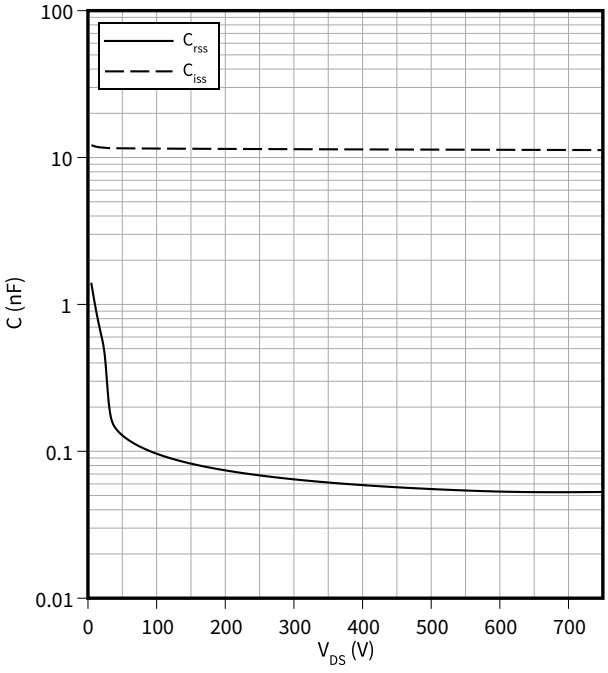
Transfer characteristic (typical), MOSFET Inverter

$I_D = f(V_{GS})$
$V_{DS} = 20$ V



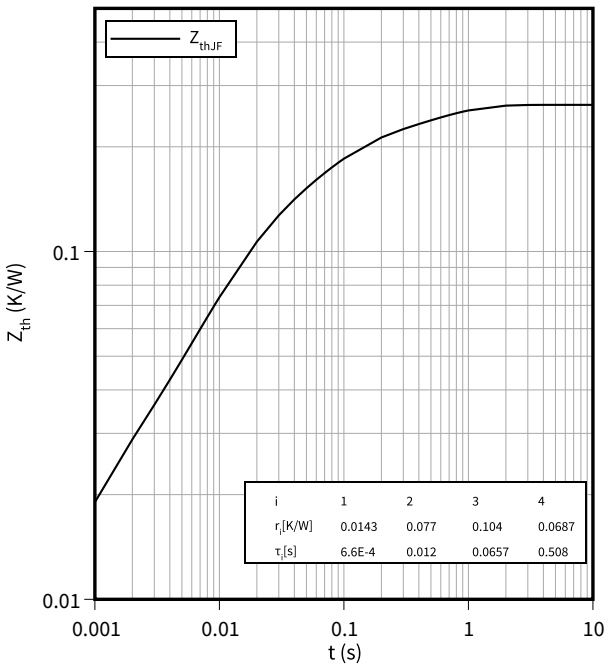
Capacity characteristic (typical), MOSFET Inverter

$C = f(V_{DS})$
$f = 0.1$ MHz, $V_{GS} = 0$ V, $T_{vj} = 25$ °C



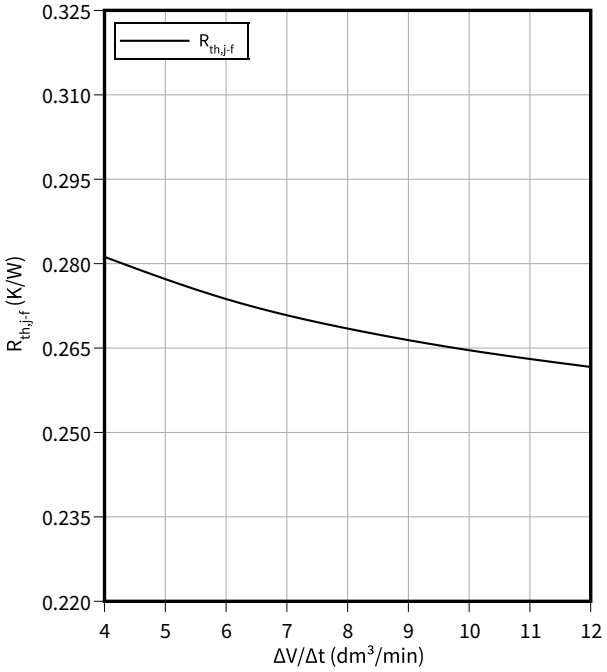
Transient thermal impedance (typical), MOSFET Inverter

$Z_{th} = f(t)$
$\Delta V/\Delta t = 10\ dm^3/min$, $T_f = 65\ °C$,
50% water / 50% ethylene glycol



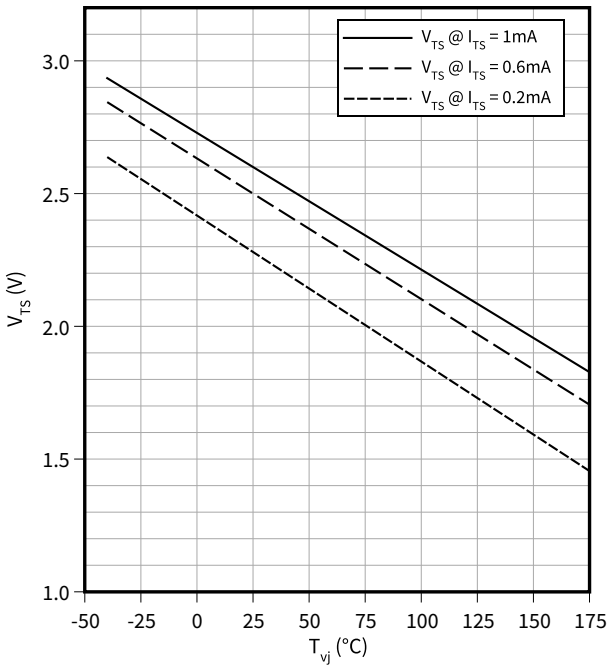
Thermal resistance (typical), MOSFET Inverter

$R_{th,j\text{-}f} = f(\Delta V/\Delta t)$
50% water / 50% ethylene glycol , $T_f = 65\ °C$

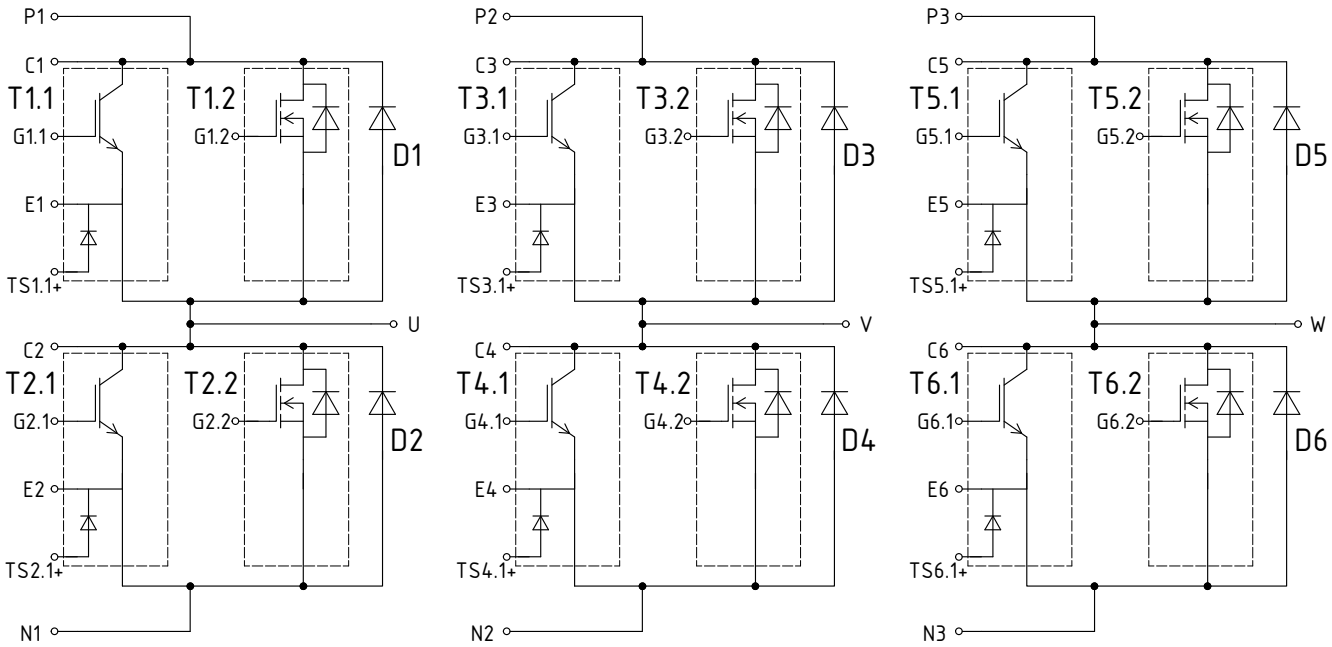


Temperature characteristic (typical), Temperature sensor

$V_{TS} = f(T_{vj})$
$I_{TS} = 0.2\ mA$



8 Circuit diagram



Notes:
1.) Collector (C) = Drain (D)
2.) Emitter (E) = Source (S)

Figure 1

9 Package outlines

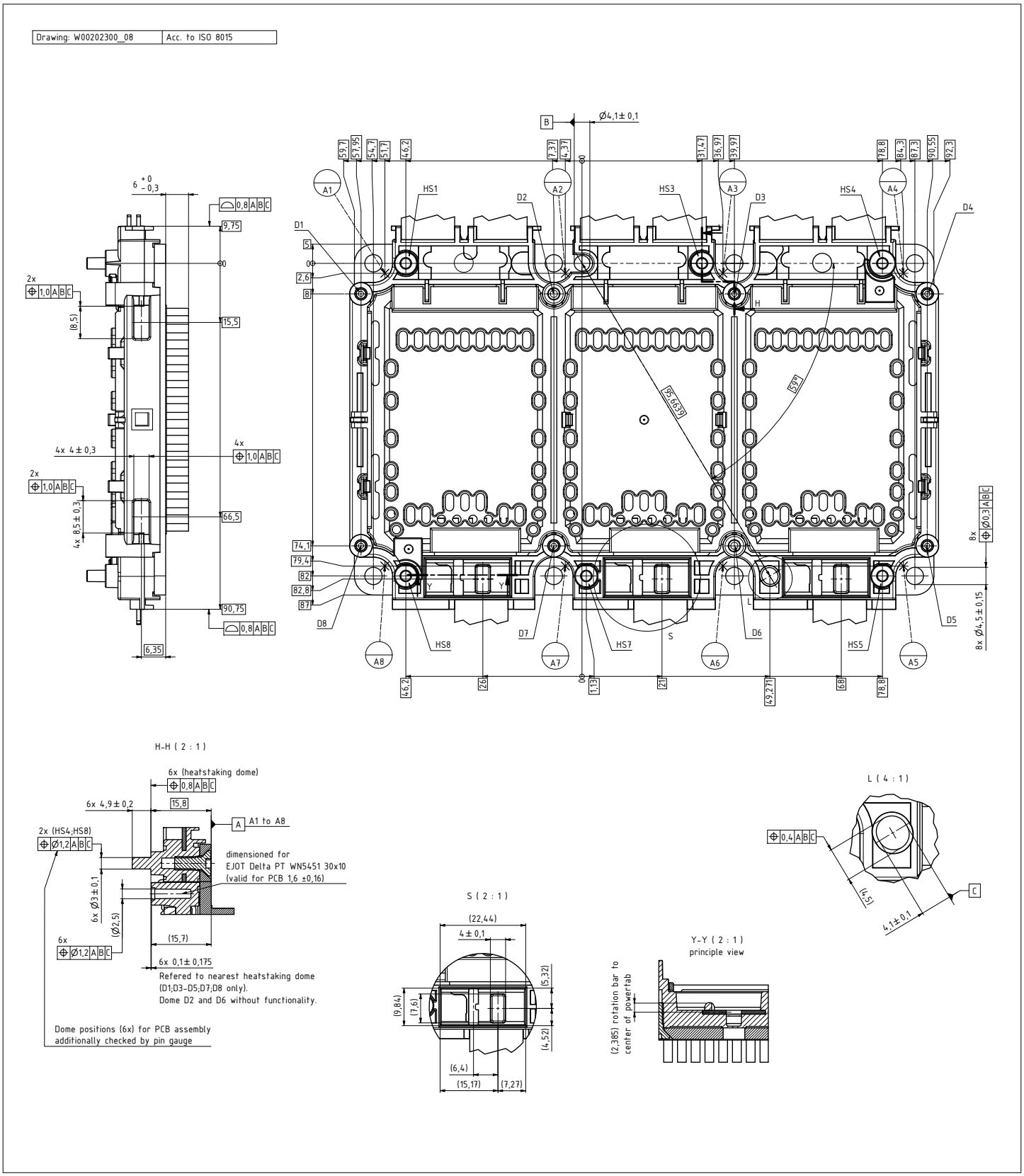


Figure 2

9 Package outlines

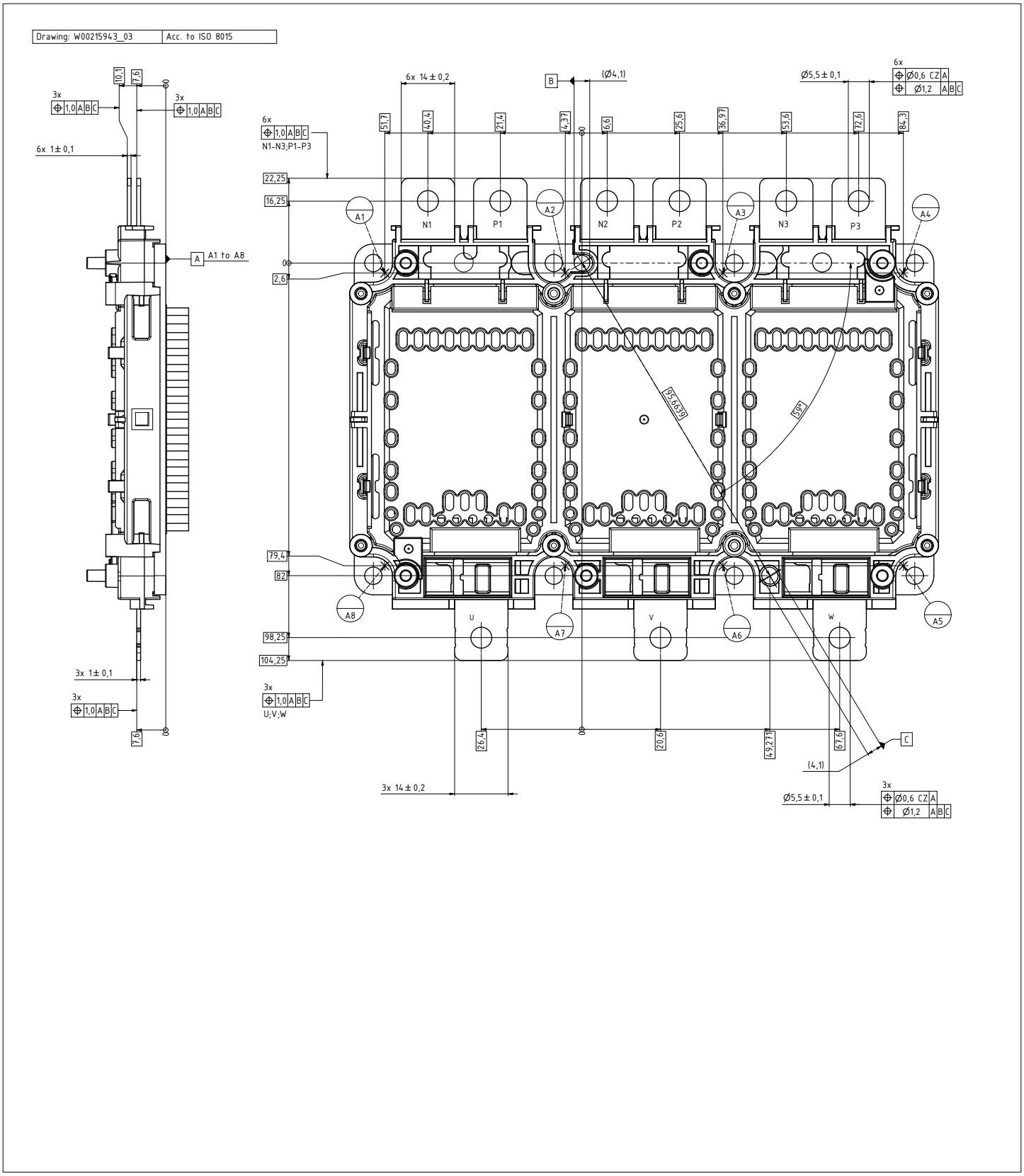


Figure 3

9 Package outlines

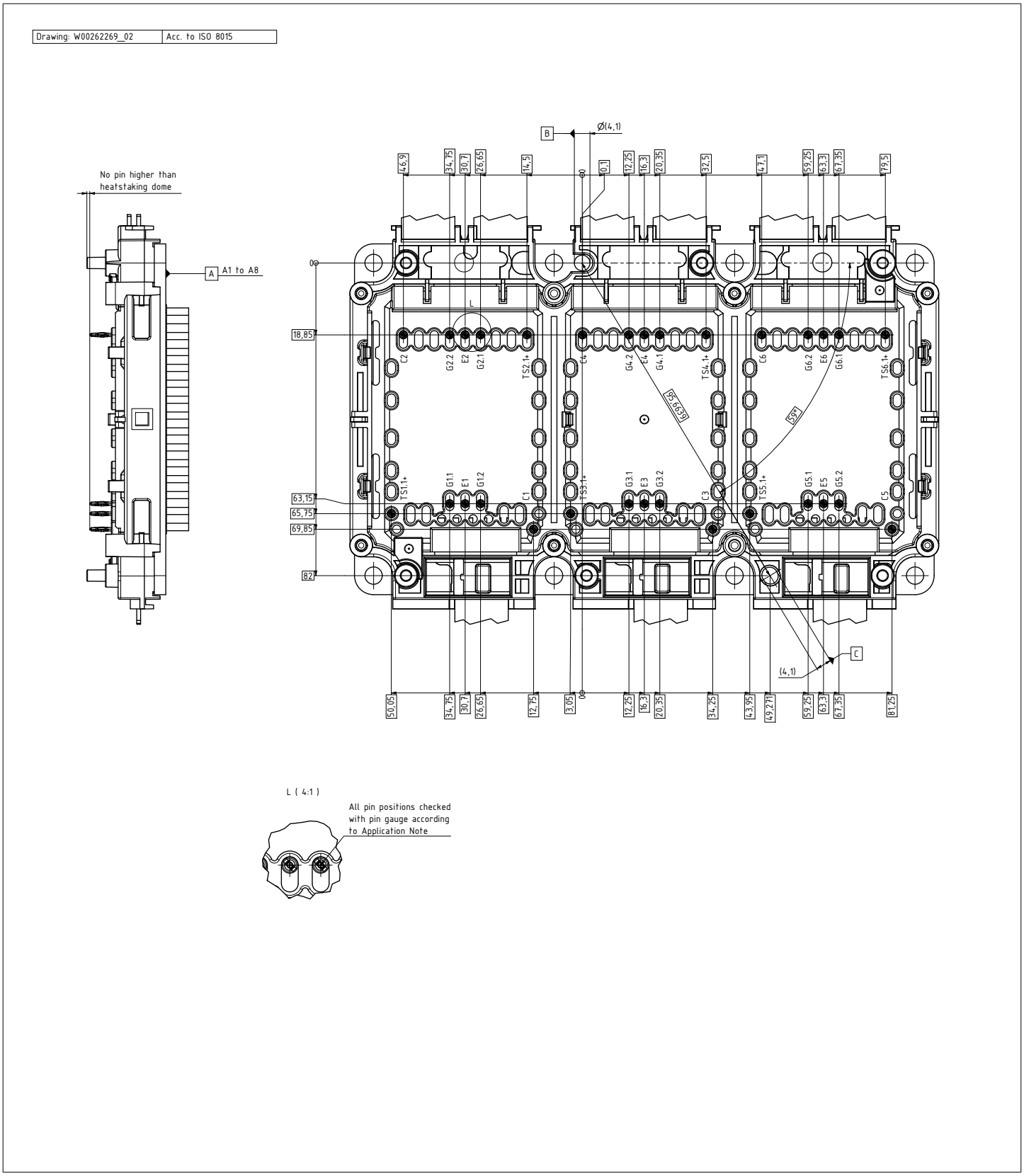


Figure 4

10 Module label code

Module label code			
Code format	Data Matrix		Barcode Code128
Encoding	ASCII text		Code Set A
Symbol size	16x16		23 digits
Standard	IEC24720 and IEC16022		IEC8859-1
Code content	*Content* Module serial number Module material number Production order number Date code (production year) Date code (production week)	*Digit* 1 – 5 6 - 11 12 - 19 20 – 21 22 – 23	*Example* 71549 142846 55054991 15 30
Example	 71549142846550549911530	 71549142846550549911530	

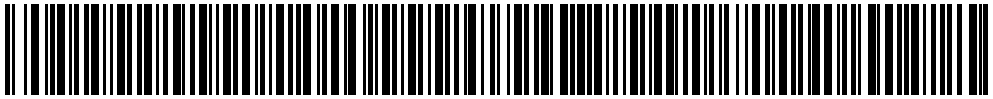
Packing label code				
Code format	Barcode Code128			
Encoding	Code Set A			
Symbol size	34 digits			
Standard	IEC8859-1			
Code content	*Content* Backend Construction Number Production Lot Number Serial Number Date code Box Quantity	*Identifier* X 1T S 9D Q	*Digit* 2 – 9 12 – 19 21 – 25 28 – 31 33 – 34	*Example* 95056609 2X0003E0 754389 1139 15
Example	 X950566091T2X0003E0S754389D1139Q15			

Figure 5

Revision history

Document revision	Date of release	Description of changes
0.10	2024-08-19	Initial version
0.20	2025-07-07	Target datasheet
0.30	2025-09-19	Preliminary datasheet
1.00	2026-02-19	Final datasheet
1.10	2026-10-12	Correction of creepage and clearance.

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